

1642



RAW SEQUENCE LISTING

DATE: 08/07/2002

PATENT APPLICATION: US/09/451,739E

TIME: 13:07:32

Input Set : A:\EP.txt

Output Set: N:\CRF4\08072002\I451739E.raw

1 <110> APPLICANT: Jager, Dirk
 2 Scanlan, Matthew
 3 Gure, Ali
 4 Jager, Elke
 5 Knuth, Alexander
 6 Old, Lloyd
 7 Chen, Yao-tseng
 9 <120> TITLE OF INVENTION: Isolated Nucleic Acid Molecules Encoding Cancer Associated
 Antigens,
 10 the Antigens per se, and Uses Thereof
 12 <130> FILE REFERENCE: LUD 5615
 14 <140> CURRENT APPLICATION NUMBER: 09/451,739E
 16 <141> CURRENT FILING DATE: 1999-11-30
 18 <160> NUMBER OF SEQ ID NOS: 19
 21 <210> SEQ ID NO: 1
 22 <211> LENGTH: 1533
 23 <212> TYPE: DNA
 24 <213> ORGANISM: Homo sapiens
 W--> 25 <220> FEATURE:
 26 <221> NAME/KEY: CDS
 27 <222> LOCATION: 235
 28 <223> OTHER INFORMATION: unknown
 W--> 29 <400> SEQUENCE: 1
 30 ggtttttccac gttggacaag tgcggctcgg cggccagcgg agcgcgcccc ttcccgcgtgc 60
 32 ccgctccgct cctctcttct acccagccca gtgggcgagt gggcagcggc ggccgcggcg 120
 34 ctgggcccctc tcccgcgggt gtgtgcgcgc tcgtacgcgc ggcccccggc gccagccccg 180
 W--> 36 ccgcctgaga gggggcctgc gccgccggcc gggggcgtgcg cccgggagcc accgncaccg 240
 38 cggcccgcgc cctcaggcgc tgggggtcccc gcggaccggg aggcggcgga cgggctcggc 300
 40 agatgtagcc gccggggccga agcaggagcc ggccgggggg cgccgggaga gcgagggttt 360
 42 tgcattttgc agtgcatttt tttgaggggg gcggagggtg gaggaagtcg gaaagccgcg 420
 44 ccgagtcgcc ggggacctcc ggggtgaacc atgttgagtc ctgccaacgg ggagcagctc 480
 46 cacctggtga actatgtgga ggactacctg gactccatcg agtccctgcc tttcgacttg 540
 48 cagagaaatg tctcgtgat gcgggagatc gacgcgaaat accaagagat cctgaaggag 600
 50 ctagacgagt gctacgagcg cttcagtcgc gagacagacg gggcgcagaa gcggcgagtg 660
 52 ctgcactgtg tgcagcgcgc gctgatccgc agccaggagc tgggcgacga gaagatccag 720
 54 atcgtgagcc agatggtgga gctgggtggg aaccgcacgc ggcagggtgga cagccacgtg 780
 56 gagctgttcg aggcgcagca ggagctgggc gacacagcgg gcaacagcgg caaggctggc 840
 58 gcggacaggc ccaaaggcga ggccgcagcg caggctgaca agcccaacag caagcgtca 900
 60 cggcggcagc gcaacaacga gaaccgtgag aacgcgtcca gcaaccacga ccacgacgac 960
 62 ggcgcctcgg gcacacccaa ggagaagaag gccaaagacct ccaagaagaa gaagcgtcc 1020
 64 aaggccaagg cggagcgaga ggcgtccctt gccgacctcc ccatcgacct caacgaacct 1080
 66 acgtactgtc tgtgcaacca ggtctcctat ggggagatga tcggctgcga caacgacgag 1140
 69 tgccccatcg agtgggtcca cttctcgtgc gtggggctca atcataaacc caagggcaag 1200
 71 tgggtactgtc ccaagtgcgg ggggggagaac gagaagacca tggacaaagc cctggagaaa 1260

ENTERED

RAW SEQUENCE LISTING

DATE: 08/07/2002

PATENT APPLICATION: US/09/451,739E

TIME: 13:07:32

Input Set : A:\EP.txt

Output Set: N:\CRF4\08072002\I451739E.raw

```

73 tccaaaaaag agagggctta caacaggtag tttgtggaca ggcgcctggt gtgaggagga 1320
75 caaaataaac cgtgtattta ttacattgct gcctttgttg aggtgcaagg agtgtaaaat 1380
77 gtatatTTTT aaagaatggt agaaaaggaa ccattccttt catagggatg gcagtgattc 1440
79 tgtttgcctt ttgttttcat tggtagacgt gtaacaagaa agtggtctgt ggatcagcat 1500
81 tttagaaact acaaatatag gtttgattca aca 1533
84 <210> SEQ ID NO: 2
85 <211> LENGTH: 1143
86 <212> TYPE: DNA
87 <213> ORGANISM: Homo sapiens
W--> 88 <400> SEQUENCE: 2
89 gagtaacccg ataatatgcc gttgtccggc acggcgacga gaattcccag atatagcagt 60
91 agcagtgate ccgggcctgt ggctcggggc cggggctgca gttcggaccg cctcccgcga 120
93 cccgcggggg ctcggagaca gtttcaggcc gcattcttgc tgacccgagg gtggggccgc 180
95 gcgtggccgt ggaaacagat cctgaaggag ctagacgagt gctacgagcg cttcagtcgc 240
97 gagacagacg gggcgacaga gcggcgatg ctgcactgtg tgcagcgcg cctgatccgc 300
99 agccaggagc tgggcgacga gaagatccag atcgtgagcc agatgggtgga gctgggtggag 360
101 aaccgcacgc ggcagggtgga cagccacgtg gagctgttcg aggcgcagca ggagctgggc 420
103 gacacagtgg gcaacagcgg caaggttggc gcggacaggc ccaatggcga tgcggtagcg 480
105 cagtctgaca agcccaacag caagcgtcga cggcggcagc gcaacaacga gaaccgtgag 540
107 aacgcgtcca gcaaccacga ccacgacgac ggcgcctcgg gcacacccaa ggagaagaag 600
109 gccaagacct ccaagaagaa gaagcgtccc aaggccaagg cggagcgaga ggcgtccctt 660
111 gccgacctcc ccacgacccc caacgaaccc acgtactgtc tgtgcaacca ggtctcctat 720
113 ggggagatga tcggctgcga caacgacgag tgcccatcgc agtggttcca cttctcgtgc 780
115 gtggggctca atcataaacc caagggcaag tggtagctgc ccaagtgcgc gggggagAAC 840
117 gagaagacca tggacaaagc cctggagaaa tccaaaaaag agagggctta caacaggtag 900
119 tttgtggaca ggcgcctggt gtgaggagga caaaataaac cgtgtattta ttacattgct 960
121 gcctttgttg aggtgcaagg agtgtaaaat gtatatTTTT aaagaatggt agaaaaggaa 1020
123 ccattccttt catagggatg gcagtgattc tgtttgcctt ttgttttcat tggtagacgt 1080
125 gtaacaagaa agtggtctgt ggatcagcat tttagaaact acaaatatag gtttgattca 1140
127 aca 1143
130 <210> SEQ ID NO: 3
131 <211> LENGTH: 742
132 <212> TYPE: DNA
133 <213> ORGANISM: Homo sapiens
W--> 134 <220> FEATURE:
W--> 135 <400> SEQUENCE: 3
137 cgccgtccac accccagcgg cctgacgt gtccctccgc cgaccctcgc ctctggaaaa 60
139 agtgacaggc aaggccacgc ccccgcgagg gccggcctcg agcccgagc ccccgaggcc 120
141 tgggacgaga tcctgaagga gctagacgag tgctacgagc gcttcagtcg cgagacagac 180
143 ggggcgcaga agcggcggat gctgcactgt gtgcagcgcg cgtgatccg cagccaggag 240
145 ctgggcgacg agaagatcca gatcgtgagc cagatggttg agctggtgga gaaccgcacg 300
147 cggcagggtg acagccacgt ggagctgttc gaggcgcagc aggagctggg cgacacagcg 360
149 ggcaacagcg gcaaggctgg cgcggacagg cccaaaggcg aggcggcagc gcaggctgac 420
151 aagcccaaca gcaagcgtc acggcggcag cgcaacaacg agaaccgtga gaacgcgtcc 480
153 agcaaccacg accacgacga cggcgccctc ggcaaccca aggagaagaa ggccaagacc 540
155 tccaagaaga agaagcgtc caaggccaag gcggagcgag aggcgtcccc tgccgacctc 600
157 cccatcgacc ccaacgaacc cacgtactgt ctgtgcaacc aggtctccta tggggagatg 660
159 atcggctgcg acaacgacga gtgccccatc gagtggttcc acttctcgtg cgtggggctc 720
161 aatcataaac ccaagggcaa gt 742

```

RAW SEQUENCE LISTING

DATE: 08/07/2002

PATENT APPLICATION: US/09/451,739E

TIME: 13:07:32

Input Set : A:\EP.txt

Output Set: N:\CRF4\08072002\I451739E.raw

164 <210> SEQ ID NO: 4

165 <211> LENGTH: 857

166 <212> TYPE: DNA

167 <213> ORGANISM: Homo sapiens

W--> 168 <400> SEQUENCE: 4

```

169 cctccgagaa cggtgtccat ggcacagggc gggaagagat aaggcctagg gaaggcgccc 60
171 ctcgggccta tccacctctt ctggggctcg gcactaggaa gcagcttccc tctcaggccc 120
173 ctttgtctcc aagccgttcc aaactgagta ccgggagacg acacaaaggg agggcggtga 180
175 cggatggcgc aggcgcggga gccgcctagg ctgctgggag tgggtggccg gccgcggaat 240
177 ggagatcctg aaggagctag acgagtgcta cgagcgcttc agtcgcgaga cagacggggc 300
179 gcagaagcgg cggtatgtgc actgtgtgca gcgcgcgctg atccgcagcc aggagctggg 360
181 cgacgagaag atccagatcg tgagccagat ggtggagctg gtggagaacc gcacgcggca 420
183 ggtggacagc cacgtggagc tgttcgaggc gcagcaggag ctgggcgaca cagcgggcaa 480
185 cagcggcaag gctggcgcgg acaggcccaa aggcgaggcg gcagcgcagg ctgacaagcc 540
187 caacagcaag cgctcacggc ggcagcgcaa caacgagAAC cgtgagaacg cgtccagcaa 600
189 ccacgaccac gacgacggcg cctcgggcac acccaaggag aagaaggcca agacctccaa 660
191 gaagaagaag cgctccaagg ccaaggcgga gcgagaggcg tcccctgccg acctccccat 720
193 cgaccccaac gaaccacagt actgtctgtg caaccaggtc tcctatgggg agatgatcgg 780
195 ctgcgacaac gacgagtgcc ccatcgagtg gttccacttc tcgtgcgtgg ggctcaatca 840
197 taaacccaag ggcaagt
857

```

205 <210> SEQ ID NO: 5

206 <211> LENGTH: 279

207 <212> TYPE: PRT

208 <213> ORGANISM: Homo sapiens

W--> 209 <400> SEQUENCE: 5

```

210 Met Leu Ser Pro Ala Asn Gly Glu Gln Leu His Leu Val Asn Tyr Val
211 1 5 10 15
213 Glu Asp Tyr Leu Asp Ser Ile Glu Ser Leu Pro Phe Asp Leu Gln Arg
214 20 25 30
216 Asn Val Ser Leu Met Arg Glu Ile Asp Ala Lys Tyr Gln Glu Ile Leu
217 35 40 45
219 Lys Glu Leu Asp Glu Cys Tyr Glu Arg Phe Ser Arg Glu Thr Asp Gly
220 50 55 60
222 Ala Gln Lys Arg Arg Met Leu His Cys Val Gln Arg Ala Leu Ile Arg
223 65 70 75 80
225 Ser Gln Glu Leu Gly Asp Glu Lys Ile Gln Ile Val Ser Gln Met Val
226 85 90 95
228 Glu Leu Val Glu Asn Arg Thr Arg Gln Val Asp Ser His Val Glu Leu
229 100 105 110
231 Phe Glu Ala Gln Gln Glu Leu Gly Asp Thr Val Gly Asn Ser Gly Lys
232 115 120 125
234 Val Gly Ala Asp Arg Pro Asn Gly Asp Ala Val Ala Gln Ser Asp Lys
235 130 135 140
237 Pro Asn Ser Lys Arg Ser Arg Arg Gln Arg Asn Asn Glu Asn Arg Glu
238 145 150 155 160
240 Asn Ala Ser Ser Asn His Asp His Asp Asp Gly Ala Ser Gly Thr Pro
241 165 170 175
243 Lys Glu Lys Lys Ala Lys Thr Ser Lys Lys Lys Lys Arg Ser Lys Ala
244 180 185 190

```

RAW SEQUENCE LISTING

DATE: 08/07/2002

PATENT APPLICATION: US/09/451,739E

TIME: 13:07:32

Input Set : A:\EP.txt

Output Set: N:\CRF4\08072002\I451739E.raw

```

246 Lys Ala Glu Arg Glu Ala Ser Pro Ala Asp Leu Pro Ile Asp Pro Asn
247      195      200      205
249 Glu Pro Thr Tyr Cys Leu Cys Asn Gln Val Ser Tyr Gly Glu Met Ile
250      210      215      220
252 Gly Cys Asp Asn Asp Glu Cys Pro Ile Glu Trp Phe His Phe Ser Cys
253 225      230      235      240
255 Val Gly Leu Asn His Lys Pro Lys Gly Lys Trp Tyr Cys Pro Lys Cys
256      245      250      255
258 Arg Gly Glu Asn Glu Lys Thr Met Asp Lys Ala Leu Glu Lys Ser Lys
259      260      265      270
261 Lys Glu Arg Ala Tyr Asn Arg
262      275
265 <210> SEQ ID NO: 6
266 <211> LENGTH: 210
267 <212> TYPE: PRT
268 <213> ORGANISM: Homo sapiens

```

W--> 269 <220> FEATURE:

W--> 270 <400> SEQUENCE: 6

```

273 Met Leu His Cys Val Gln Arg Ala Leu Ile Arg Ser Gln Glu Leu Gly
274 1      5      10      15
276 Asp Glu Lys Ile Gln Ile Val Ser Gln Met Val Glu Leu Val Glu Asn
277      20      25      30
279 Arg Thr Arg Gln Val Asp Ser His Val Glu Leu Phe Glu Ala Gln Gln
280      35      40      45
282 Glu Leu Gly Asp Thr Val Gly Asn Ser Gly Lys Val Gly Ala Asp Arg
283      50      55      60
285 Pro Asn Gly Asp Ala Val Ala Gln Ser Asp Lys Pro Asn Ser Lys Arg
286 65      70      75      80
288 Ser Arg Arg Gln Arg Asn Asn Glu Asn Arg Glu Asn Ala Ser Ser Asn
289      85      90      95
291 His Asp His Asp Asp Gly Ala Ser Gly Thr Pro Lys Glu Lys Lys Ala
292      100     105     110
294 Lys Thr Ser Lys Lys Lys Lys Arg Ser Lys Ala Lys Ala Glu Arg Glu
295      115     120     125
297 Ala Ser Pro Ala Asp Leu Pro Ile Asp Pro Asn Glu Pro Thr Tyr Cys
298      130     135     140
300 Leu Cys Asn Gln Val Ser Tyr Gly Glu Met Ile Gly Cys Asp Asn Asp
301 145     150     155     160
303 Glu Cys Pro Ile Glu Trp Phe His Phe Ser Cys Val Gly Leu Asn His
304      165     170     175
306 Lys Pro Lys Gly Lys Trp Tyr Cys Pro Lys Cys Arg Gly Glu Asn Glu
307      180     185     190
309 Lys Thr Met Asp Lys Ala Leu Glu Lys Ser Lys Lys Glu Arg Ala Tyr
310      195     200     205
312 Asn Arg
313      210
316 <210> SEQ ID NO: 7
317 <211> LENGTH: 235
318 <212> TYPE: PRT

```

RAW SEQUENCE LISTING

DATE: 08/07/2002

PATENT APPLICATION: US/09/451,739E

TIME: 13:07:32

Input Set : A:\EP.txt

Output Set: N:\CRF4\08072002\I451739E.raw

319 <213> ORGANISM: Homo sapiens
W--> 320 <400> SEQUENCE: 7
321 Met Glu Ile Leu Lys Glu Leu Asp Glu Cys Tyr Glu Arg Phe Ser Arg
322 1 5 10 15
324 Glu Thr Asp Gly Ala Gln Lys Arg Arg Met Leu His Cys Val Gln Arg
325 20 25 30
327 Ala Leu Ile Arg Ser Gln Glu Leu Gly Asp Glu Lys Ile Gln Ile Val
328 35 40 45
330 Ser Gln Met Val Glu Leu Val Glu Asn Arg Thr Arg Gln Val Asp Ser
331 50 55 60
333 His Val Glu Leu Phe Glu Ala Gln Gln Glu Leu Gly Asp Thr Val Gly
334 65 70 75 80
336 Asn Ser Gly Lys Val Gly Ala Asp Arg Pro Asn Gly Asp Ala Val Ala
337 85 90 95
341 Gln Ser Asp Lys Pro Asn Ser Lys Arg Ser Arg Arg Gln Arg Asn Asn
342 100 105 110
344 Glu Asn Arg Glu Asn Ala Ser Ser Asn His Asp His Asp Asp Gly Ala
345 115 120 125
347 Ser Gly Thr Pro Lys Glu Lys Lys Ala Lys Thr Ser Lys Lys Lys Lys
348 130 135 140
350 Arg Ser Lys Ala Lys Ala Glu Arg Glu Ala Ser Pro Ala Asp Leu Pro
351 145 150 155 160
353 Ile Asp Pro Asn Glu Pro Thr Tyr Cys Leu Cys Asn Gln Val Ser Tyr
354 165 170 175
356 Gly Glu Met Ile Gly Cys Asp Asn Asp Glu Cys Pro Ile Glu Trp Phe
357 180 185 190
359 His Phe Ser Cys Val Gly Leu Asn His Lys Pro Lys Gly Lys Trp Tyr
360 195 200 205
362 Cys Pro Lys Cys Arg Gly Glu Asn Glu Lys Thr Met Asp Lys Ala Leu
363 210 215 220
365 Glu Lys Ser Lys Lys Glu Arg Ala Tyr Asn Arg
366 225 230 235

369 <210> SEQ ID NO: 8

370 <211> LENGTH: 772

371 <212> TYPE: DNA

372 <213> ORGANISM: Homo sapiens

W--> 373 <220> FEATURE:

374 <221> NAME/KEY: CDS

375 <222> LOCATION: 689,714

376 <223> OTHER INFORMATION: Unknown

W--> 377 <400> SEQUENCE: 8

378 aaagcgttct cggcggcagc gcaacaacta gaaccgtgag aacgcgtcca gcaaccgcga 60
380 cccacgacga cgtaacctcg ggcaagccca aggagaagaa agcccagacc tctaagaaga 120
382 agcagggctc catggccaag gcgtagcggc aggcgtcccc cgcagacctc cccatcgacc 180
384 ccagcgagcc ctccactagg gagatgatcc gctgcgacaa cgaatgcccc atcgagtggg 240
386 tccgtttctc gtgtgtgagt ctcaaccata aaccaaagcg caagtgggtac tgttccagat 300
388 gccggggaaa gaacgatggg caaagccctt gagaagtcca gaaaaaaaac agggcttata 360
390 acaggtagtt tggggacatg cgtctaatag tgaggagaaac aaaataagcc agtgtgttga 420
392 ttacattgcc acctttgctg aggtgcagga agtgtaaaat gtatatatttt aaagaatggt 480

RAW SEQUENCE LISTING ERROR SUMMARY
PATENT APPLICATION: US/09/451,739E

DATE: 08/07/2002
TIME: 13:07:33

Input Set : A:\EP.txt
Output Set: N:\CRF4\08072002\I451739E.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:1; N Pos. 235

Seq#:8; N Pos. 689,714

Seq#:15; N Pos. 1628,1752,1758,1769,1789,1873,1908,1915,1933,1970,1976,2022